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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/869,133	11/26/2001	Yasuhiro Kinoshita	M 6830 PCT/US	2321

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EXAMINER
FEELY, MICHAEL J

ART UNIT	PAPER NUMBER
1712	8

DATE MAILED: 02/20/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/869,133	KINOSHITA ET AL.	
	Examiner	Art Unit	
	Michael J Feely	1712	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *26 November 2001* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-21* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-21* is/are rejected.

7)☒ Claim(s) *19-21* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) *7* .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Claim Objections

2. Claims 19-21 are objected to because of the following informalities: the average particle size of the polyolefin wax is expressed in terms of nm; however, it is clear from the specification (page 7) and claim 6 that this particle size limitation was meant to be expressed in terms of μm. Appropriate correction is required.

Claim Rejections - 35 USC § 102/103

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claims 1-14 and 18-21 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Katsumi et al. (JP 08-258214). The citations of this rejection refer to the accompanying machine translation of the Japanese reference, provided by the JPO web site.

Regarding claims 1 and 7, Katsumi et al. disclose a water-based metal surface treatment composition for forming a lubricating film with excellent marring resistance (Abstract; paragraph 0001) comprising: (a) a water-based urethane resin, in which the average molecular weight of the water-based urethane resin is at least 3000 (Abstract; paragraph 0012) and having a resin skeleton which comprises a bisphenol skeleton and at least one carboxyl group (Abstract; paragraph 0012), the content of nitrogen participating in an isocyanate reaction during synthesis of said water-based urethane resin is between 2 and 13 wt% (paragraph 0014); (b) a hardener (Abstract; paragraph 0017); (c) silica (Abstract; paragraph 0025); and (d) a polyolefin wax (Abstract; paragraph 0022), wherein the combined amount of components (a) and (b), as solids with respect to the total solid weight (e), is 50 to 95 wt% (Abstract; paragraph 0020), the equivalent ratio of functional groups in component (b) with respect to the equivalents of carboxyl groups contained in the resin skeleton of component (a) is 0.10 to 1.00 (paragraphs 0017-0018), the solid weight component (c) with respect to (e) is 3 to 40 wt% (Abstract; paragraph 0025), and the solid weight of component (d) with respect to (e) is 2 to 30 wt% (Abstract; paragraph 0024).

Katsumi et al. do not explicitly disclose the following limitation: the ratio of the nitrogen in urea to the nitrogen participating in the isocyanate reaction, which is the proportion of nitrogen atoms pertaining to urea bonds out of the nitrogen atoms participating in the isocyanate reaction during synthesis of said water-based urethane resin, is between 10/100 and 90/100, and more specifically between 40/100 and 80/100. In other words, the percentage of nitrogen atoms in the water-based urethane resin that are part of urea bonds, is 10% to 90%, and more specifically 40% to 80% (this interpretation is supported on page 12 of the instant application).

The urethane resin of Katsumi et al. contains a bisphenol skeleton, an ester skeleton, and carboxyl groups. The carboxyl groups are introduced via a diamino carboxylic acid reactant, which is reacted with an isocyanate reactant and a polyol reactant, yielding the urethane resin (paragraphs 0014 and 0015). The diamino carboxylic acid component would have inherently contributed urea bonds to the urethane resin. Katsumi et al. further disclose, "It is suitable for the amount of a carboxyl group that it is 10-50 in the acid number per urethane solid content," (paragraph 0016). Because the carboxyl group content is directly related to the urea content, it is believed that the disclosed carboxyl content corresponds to a urea content that would have inherently overlapped the claimed range of the instant invention. This is further supported by the disclosure that 5-20 wt% of the urethane resin can be obtained by NCO conversion. This would suggest that the remaining nitrogen content of the urethane resin is contributed by the diamino carboxylic acid reactant, which would in turn suggest a high proportion urea-nitrogen in the overall urethane resin.

Therefore, if not explicitly taught in the reference, then the teachings would have been obvious to one of ordinary skill in the art at the time of the invention.

Regarding claims 2-6 and 8-12, Katsumi et al. disclose a water-based metal surface treatment composition as defined in claim 1, ***(2)*** wherein the content of nitrogen participating in an isocyanate reaction during the synthesis of the water-based urethane resin is 5 to 10 wt% (paragraph 0014); ***(3)*** wherein the hardener comprises at least one type of functional group selected from the group consisting of epoxy groups an isocyanate groups (Abstract; paragraph 0017); ***(4)*** wherein the amount of carboxyl groups in the water-based urethane resin is 10 to 50 calculated as the acid value for the solids of said resin (paragraph 0016); ***(5)*** wherein the

saponification value of the polyolefin wax is zero to 30, and the structure of the polyolefin wax is branched (paragraph 0023); ***(6)*** wherein the polyolefin wax has an average particle size of 0.1 to 7.0 μm (paragraph 0024); ***(8)*** wherein the equivalent ratio of functional groups in component (b) with respect to equivalents of carboxyl groups contained in the skeleton of component (a) is 0.30 to 1.00 (paragraph 0017); ***(9)*** wherein the combined amount of components (a) and (b), as solids with respect to the total solid weight (e), is 55 to 75% (paragraph 0020); ***(10)*** wherein the solid weight of component (c) with respect to (e) is 10 to 30 wt% (paragraph 0025); ***(11)*** wherein said silica has a particle size of 3 to 30 nm (paragraph 0025); and ***(12)*** wherein said polyolefin wax has a melting point of 110 to 160°C (paragraph 0022).

Regarding claims 13 and 14, Katsumi et al. disclose ***(13)*** a method of forming a lubricating film with excellent marring resistance on a metal surface, said method comprising: (a) forming a coating on said metal surface of the water-based metal surface treatment composition of claim 1 (paragraphs 0031-0032) and (b) drying said coating (paragraphs 0031-0032); and ***(14)*** wherein said metal surface is a material selected from the group the group consisting of cold rolled steel sheets, galvanized steel sheets, and stainless steel sheets (paragraphs 0031-0032).

Regarding claim 18, Katsumi et al. disclose a lubricating film obtained by drying a coating of the water-based metal surface treatment composition of claim 1 (paragraph 0031).

Regarding claim 19, Katsumi et al. disclose a water-based metal surface treatment composition for forming a lubricating film with excellent marring resistance (Abstract; paragraph 0001) comprising: (a) a water-based urethane resin, in which the average molecular weight of the water-based urethane resin is at least 3000 (Abstract; paragraph 0012) and having a

resin skeleton which comprises a bisphenol skeleton and at least one carboxyl group (Abstract; paragraph 0012), the content of nitrogen participating in an isocyanate reaction during synthesis of said water-based urethane resin is between 5 and 10 wt% (paragraph 0014); (b) a hardener comprising at least one type of functional group selected from the group consisting of epoxy groups and isocyante groups (Abstract; paragraph 0017); (c) silica having a particle size of 3 to 30 nm (Abstract; paragraph 0025); and (d) a polyolefin wax having a branched structure, an average particle size of 0.1 to 7.0 μm and a saponification value of zero to 30 (Abstract; paragraphs 0022-0023), wherein the combined amount of components (a) and (b), as solids with respect to the total solid weight (e), is 55 to 75 wt% (Abstract; paragraph 0020), the equivalent ratio of functional groups in component (b) with respect to the equivalents of carboxyl groups contained in the resin skeleton of component (a) is 0.30 to 1.00 (paragraphs 0017-0018), the solid weight component (c) with respect to (e) is 10 to 30 wt% (Abstract; paragraph 0025), and the solid weight of component (d) with respect to (e) is 10 to 25 wt% (Abstract; paragraph 0024).

Katsumi et al. do not explicitly disclose the following limitation: the ratio of the nitrogen in urea to the nitrogen participating in the isocyanate reaction, which is the proportion of nitrogen atoms pertaining to urea bonds out of the nitrogen atoms participating in the isocyanate reaction during synthesis of said water-based urethane resin, is between 40/100 and 80/100. In other words, the percentage of nitrogen atoms in the water-based urethane resin that are part of urea bonds, is 40% to 80% (this interpretation is supported on page 12 of the instant application). However, Katsumi et al. would have inherently taught this limitation for the reasons set forth in the rejection of claims 1 and 7.

Therefore, if not explicitly taught in the reference, then the teachings would have been obvious to one of ordinary skill in the art at the time of the invention.

Regarding claim 20, Katsumi et al. disclose a lubricating film obtained by drying a coating of the water-based metal surface treatment composition of claim 19 (paragraph 0031).

Regarding claim 21, Katsumi et al. disclose a method of forming a lubricating film with excellent marring resistance on a metal surface, said method comprising: (a) forming a coating on said metal surface of the water-based metal surface treatment composition of claim 19 (paragraphs 0031-0032) and (b) drying said coating (paragraphs 0031-0032).

6. Claims 1-21 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Morita et al. (JP 06-145559). The citations of this rejection refer to the accompanying machine translation of the Japanese reference, provided by the JPO web site.

Regarding claims 1 and 7, Morita et al. disclose a water-based metal surface treatment composition for forming a lubricating film with excellent marring resistance (Abstract; paragraph 0001) comprising: (a) a water-based urethane resin, in which the average molecular weight of the water-based urethane resin is at least 3000 (Abstract; paragraph 0010) and having a resin skeleton which comprises a bisphenol skeleton and at least one carboxyl group (Abstract; paragraph 0010), the content of nitrogen participating in an isocyanate reaction during synthesis of said water-based urethane resin is between 2 and 13 wt% (paragraph 0014); (b) a hardener (Abstract; paragraph 0017); (c) silica (Abstract; paragraph 0026); and (d) a polyolefin wax (Abstract; paragraph 0023), wherein the combined amount of components (a) and (b), as solids with respect to the total solid weight (e), is 50 to 95 wt% (Abstract; paragraph 0021), the

equivalent ratio of functional groups in component (b) with respect to the equivalents of carboxyl groups contained in the resin skeleton of component (a) is 0.10 to 1.00 (paragraphs 0017-0018), the solid weight component (c) with respect to (e) is 3 to 40 wt% (Abstract; paragraph 0026), and the solid weight of component (d) with respect to (e) is 2 to 30 wt% (Abstract; paragraph 0025).

Morita et al. do not explicitly disclose the following limitation: the ratio of the nitrogen in urea to the nitrogen participating in the isocyanate reaction, which is the proportion of nitrogen atoms pertaining to urea bonds out of the nitrogen atoms participating in the isocyanate reaction during synthesis of said water-based urethane resin, is between 10/100 and 90/100, and more specifically between 40/100 and 80/100. In other words, the percentage of nitrogen atoms in the water-based urethane resin that are part of urea bonds, is 10% to 90%, and more specifically 40% to 80% (this interpretation is supported on page 12 of the instant application).

The urethane resin of Morita et al. contains a bisphenol skeleton, an ester skeleton, and carboxyl groups. The carboxyl groups are introduced via a diamino carboxylic acid reactant, which is reacted with an isocyanate reactant and a polyol reactant, yielding the urethane resin (paragraphs 0014 and 0015). The diamino carboxylic acid component would have inherently contributed urea bonds to the urethane resin. Morita et al. further disclose, "It is suitable for the amount of a carboxyl group that it is 10-50 in the acid number per urethane solid content," (paragraph 0016). Because the carboxyl group content is directly related to the urea content, it is believed that the disclosed carboxyl content corresponds to a urea content that would have inherently overlapped the claimed range of the instant invention. This is further supported by the disclosure that 5-20 wt% of the urethane resin can be obtained by NCO conversion. This would suggest that the remaining nitrogen content of the urethane resin is contributed by the diamino

carboxylic acid reactant, which would in turn suggest a high proportion urea-nitrogen in the overall urethane resin.

Therefore, if not explicitly taught in the reference, then the teachings would have been obvious to one of ordinary skill in the art at the time of the invention.

Regarding claims 2-6 and 8-12, Morita et al. disclose a water-based metal surface treatment composition as defined in claim 1, ***(2)*** wherein the content of nitrogen participating in an isocyanate reaction during the synthesis of the water-based urethane resin is 5 to 10 wt% (paragraph 0014); ***(3)*** wherein the hardener comprises at least one type of functional group selected from the group consisting of epoxy groups an isocyanate groups (Abstract; paragraph 0017); ***(4)*** wherein the amount of carboxyl groups in the water-based urethane resin is 10 to 50 calculated as the acid value for the solids of said resin (paragraph 0016); ***(5)*** wherein the saponification value of the polyolefin wax is zero to 30, and the structure of the polyolefin wax is branched (paragraph 0024); ***(6)*** wherein the polyolefin wax has an average particle size of 0.1 to 7.0 μm (paragraph 0025); ***(8)*** wherein the equivalent ratio of functional groups in component (b) with respect to equivalents of carboxyl groups contained in the skeleton of component (a) is 0.30 to 1.00 (paragraph 0017); ***(9)*** wherein the combined amount of components (a) and (b), as solids with respect to the total solid weight (e), is 55 to 75% (paragraph 0021); ***(10)*** wherein the solid weight of component (c) with respect to (e) is 10 to 30 wt% (paragraph 0025); ***(11)*** wherein said silica has a particle size of 3 to 30 nm (paragraph 0026); and ***(12)*** wherein said polyolefin wax has a melting point of 110 to 160°C (paragraph 0023).

Regarding claims 13-17, Morita et al. disclose ***(13)*** a method of forming a lubricating film with excellent marring resistance on a metal surface, said method comprising: (a) forming a

coating on said metal surface of the water-based metal surface treatment composition of claim 1 (paragraphs 0031) and (b) drying said coating (paragraphs 0031); ***(14)*** wherein said metal surface is a material selected from the group the group consisting of cold rolled steel sheets, galvanized steel sheets, and stainless steel sheets (paragraphs 0029); ***(15)*** wherein said coating after drying has a weight from 0.3 to 5.0 g/m^2 (paragraph 0029); ***(16)*** wherein said metal surface is degreased prior to step (a) (paragraph 0030); and ***(17)*** wherein a primer film is formed on said metal surface prior to step (a) (paragraph 0030).

Regarding claim 18, Morita et al. disclose a lubricating film obtained by drying a coating of the water-based metal surface treatment composition of claim 1 (paragraph 0029).

Regarding claim 19, Morita et al. disclose a water-based metal surface treatment composition for forming a lubricating film with excellent marring resistance (Abstract; paragraph 0001) comprising: (a) a water-based urethane resin, in which the average molecular weight of the water-based urethane resin is at least 3000 (Abstract; paragraph 0010) and having a resin skeleton which comprises a bisphenol skeleton and at least one carboxyl group (Abstract; paragraph 0010), the content of nitrogen participating in an isocyanate reaction during synthesis of said water-based urethane resin is between 5 and 10 wt% (paragraph 0014); (b) a hardener comprising at least one type of functional group selected from the group consisting of epoxy groups and isocyante groups (Abstract; paragraph 0017); (c) silica having a particle size of 3 to 30 nm (Abstract; paragraph 0026); and (d) a polyolefin wax having a branched structure, an average particle size of 0.1 to 7.0 μm and a saponification value of zero to 30 (Abstract; paragraphs 0023-0025), wherein the combined amount of components (a) and (b), as solids with respect to the total solid weight (e), is 55 to 75 wt% (Abstract; paragraph 0021), the equivalent

ratio of functional groups in component (b) with respect to the equivalents of carboxyl groups contained in the resin skeleton of component (a) is 0.30 to 1.00 (paragraphs 0017-0018), the solid weight component (c) with respect to (e) is 10 to 30 wt% (Abstract; paragraph 0026), and the solid weight of component (d) with respect to (e) is 10 to 25 wt% (Abstract; paragraph 0025).

Morita et al. do not explicitly disclose the following limitation: the ratio of the nitrogen in urea to the nitrogen participating in the isocyanate reaction, which is the proportion of nitrogen atoms pertaining to urea bonds out of the nitrogen atoms participating in the isocyanate reaction during synthesis of said water-based urethane resin, is between 40/100 and 80/100. In other words, the percentage of nitrogen atoms in the water-based urethane resin that are part of urea bonds, is 40% to 80% (this interpretation is supported on page 12 of the instant application). However, Morita et al. would have inherently taught this limitation for the reasons set forth in the rejection of claims 1 and 7.

Therefore, if not explicitly taught in the reference, then the teachings would have been obvious to one of ordinary skill in the art at the time of the invention.

Regarding claim 20, Morita et al. disclose a lubricating film obtained by drying a coating of the water-based metal surface treatment composition of claim 19 (paragraph 0029).

Regarding claim 21, Morita et al. disclose a method of forming a lubricating film with excellent marring resistance on a metal surface, said method comprising: (a) forming a coating on said metal surface of the water-based metal surface treatment composition of claim 19 (paragraph 0030) and (b) drying said coating (paragraph 0030).

X-References of the International Search Report

7. The international search report provided with this National Stage Application cited the following references as "X" references: JP 10-110093 and JP 06-145559. JP 06-145559 was used as a prior art reference in this Office action; however, JP 10-110093 was not applied. Although the teachings are related, they fail to anticipate or represent an obvious variation of the instant invention.

Conclusion

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The following references are closely related to the instant invention and the applied prior art: JP 08-290109; JP 08-290110; 06-173037, and US Pat. No. 6,479,152.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael J Feely whose telephone number is 703-305-0268. The examiner can normally be reached on M-F 8:30 to 5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Dawson can be reached on 703-308-2340. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9310 for regular communications and 703-872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.

Michael J. Feely
February 10, 2003

Robert Dawson
Supervisory Patent Examiner
Technology Center 1700